



Southern
California
Gas Company®



Sempra Energy® utilities



LNG – Emerging Energy Option

Energy Working Group Meeting
Southern California Association of Governments
November 28, 2006

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Background

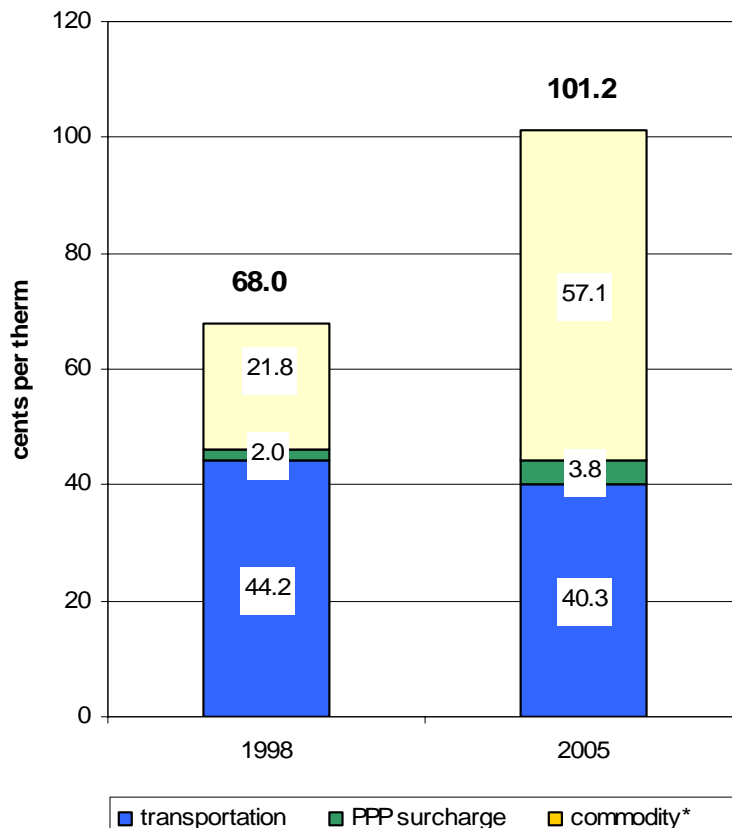


- Since the 1980s, North American natural gas consumers have enjoyed the benefits of a significant surplus of natural gas
- Over the last five years, this situation has changed
 - Nationally, there is more concern about the adequacy of the natural gas supply base in North America
 - New domestic supply additions are not keeping pace with demand
 - Nationally, prices for natural gas have increased and become more volatile
 - Higher gas prices cannot be avoided unless new economic supplies are brought into the market

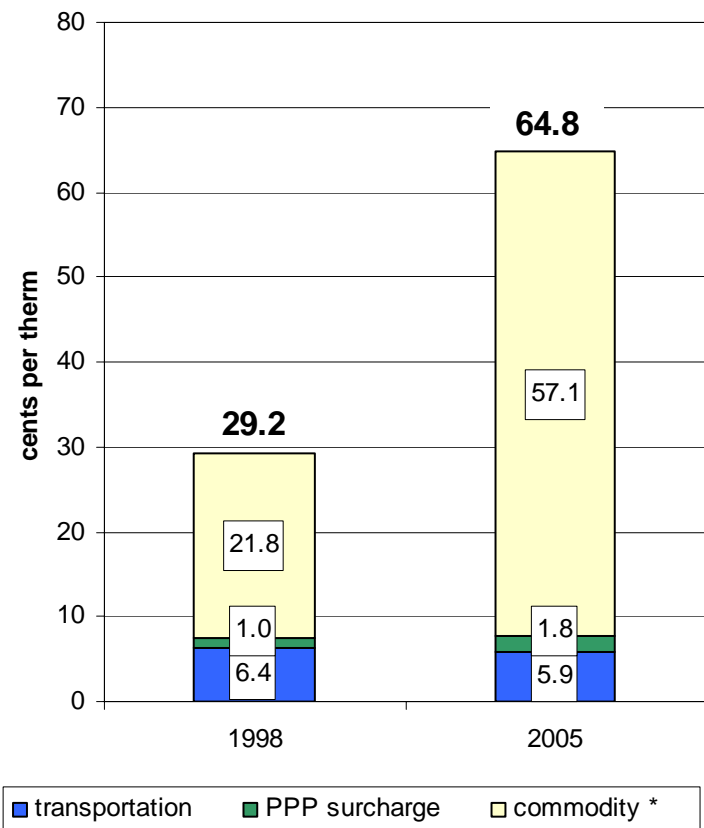
Total Delivered Cost of Gas for SoCalGas Customers



Delivered Cost of Gas for SoCalGas Residential Customer



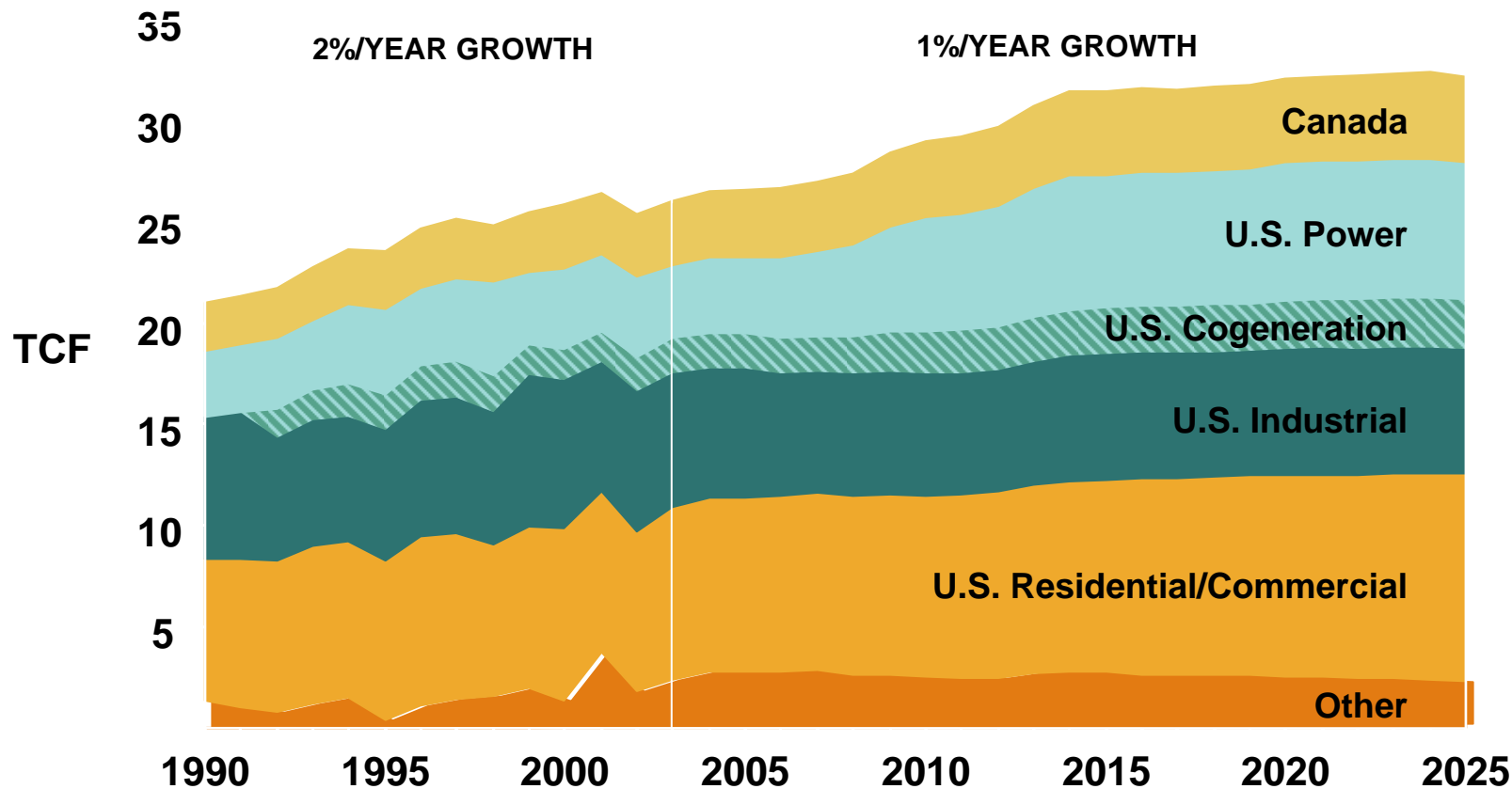
Delivered Cost of Gas for SoCalGas Noncore Comm/Ind Customer



* Average commodity price for SoCalGas core customers. Noncore customers procure their own gas and the actual commodity prices for noncore customers will vary.



Demand is Diverse and Power Generation Will Drive Growth



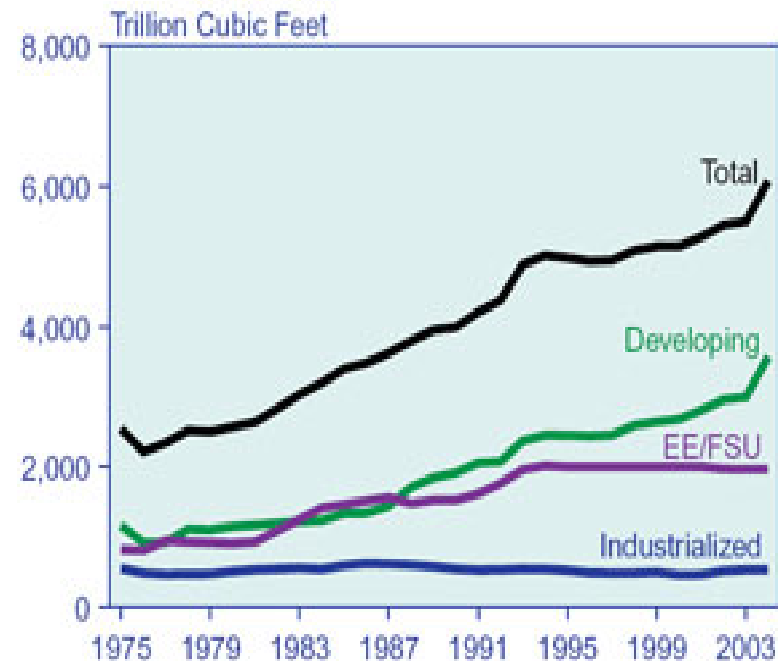
Source: National Petroleum Council

Global Gas Supply Outlook



- Proven natural gas reserves have trended upward since the mid-70s
- As of 1-1-04, proven worldwide natural gas reserves equal 6,076 trillion cubic feet
- Estimated “undiscovered” reserves equal 4,258 trillion cubic feet worldwide
- LNG will provide access to these supplies

Figure 38. World Natural Gas Reserves by Region, 1975-2004



Industrialized - N.A., W. Eur.

EE/FSU -E Eur, fmr Soviet Union

Developing- Africa, Middle East, SE Asia

Energy Information Administration:

http://www.eia.doe.gov/oiaf/ieo/nat_gas.html

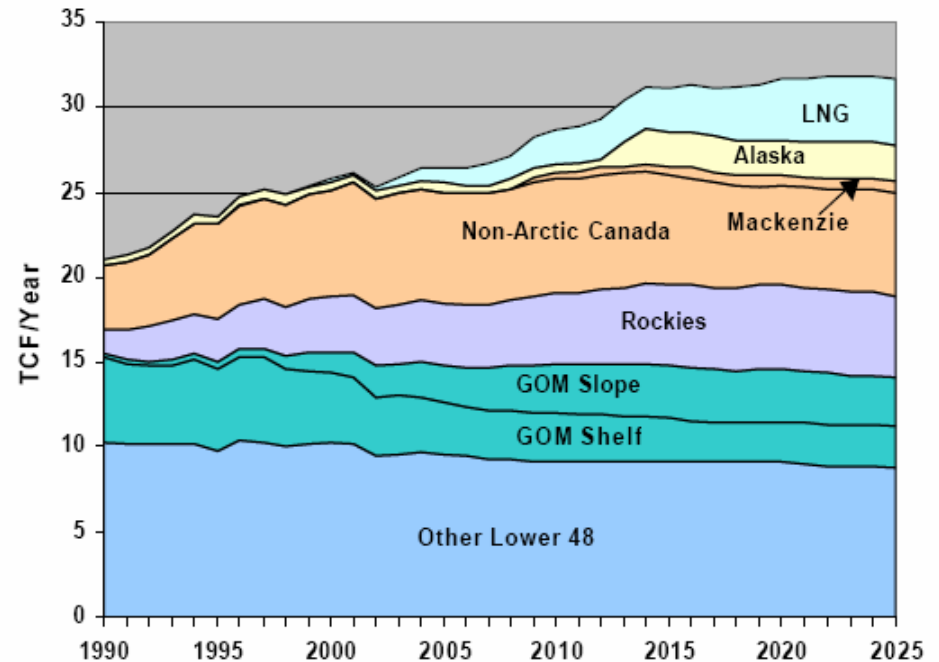


New Supplies are Needed to Keep up with Demand



North American Gas Supply / Demand Balance

- New supply sources critical in meeting market demand
 - LNG
 - Arctic Gas Supplies



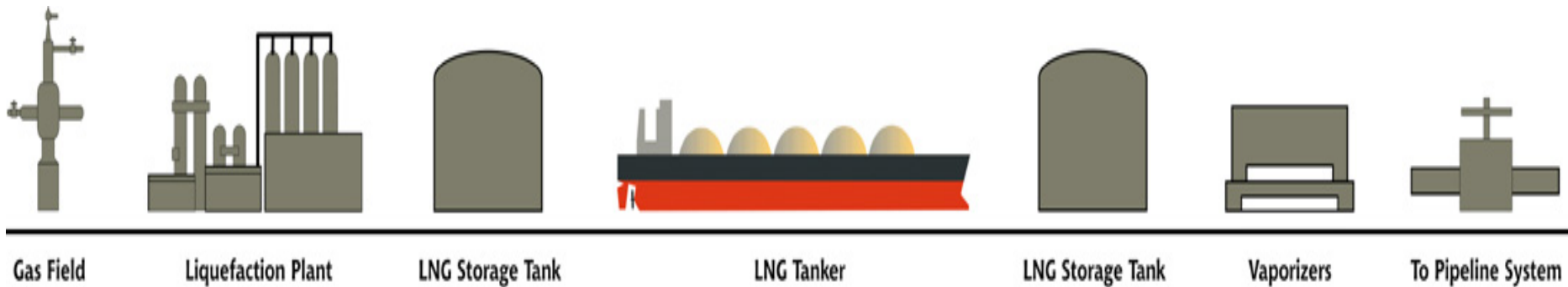
Source: National Petroleum Council

What is LNG?



- LNG is Liquefied Natural Gas
- Same as “regular” natural gas currently delivered
- Liquefied to make it more dense for ease of transport
- Cooled to -260F, 600 times more compact

Wellhead to Market



PRODUCING REGION

Natural gas is extracted from the reservoir and piped to a liquefaction plant.

At the liquefaction plant, the gas is super cooled into a liquid by cooling to -256°F (-161°C) and its volume is reduced to 600 times that of natural gas.

The LNG is stored in tanks to await shipping.

The liquefied gas is transferred to a purpose-built double hulled tanker and shipped at atmospheric pressure. The LNG is kept at -256°F by an auto-refrigerant process.

CONSUMING REGION

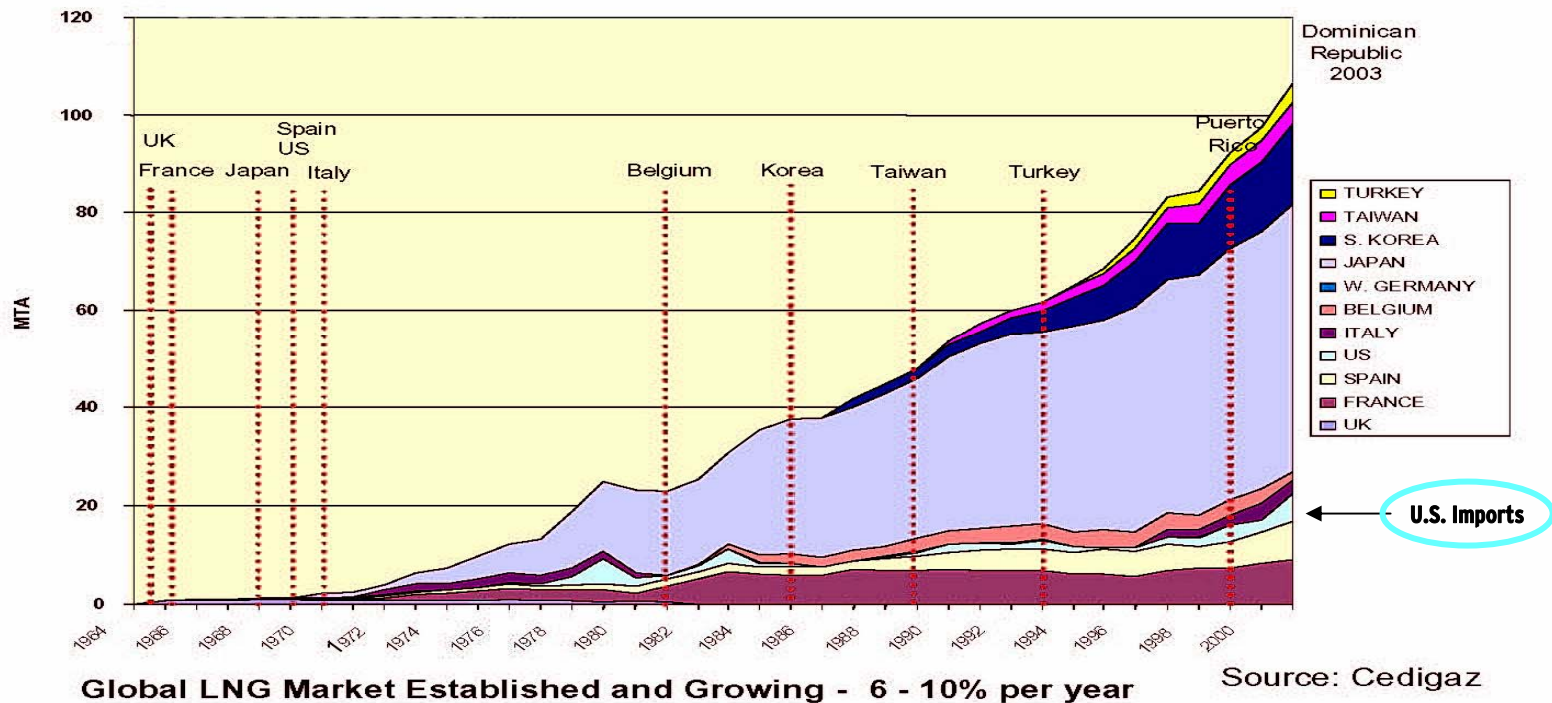
At the regasification terminal, the liquid is pumped from the ship to an above ground storage tank. It can then be returned to its gaseous state as it passes through vaporizers and distributed by pipeline or trucked directly to customers.



Historic Annual World LNG Imports



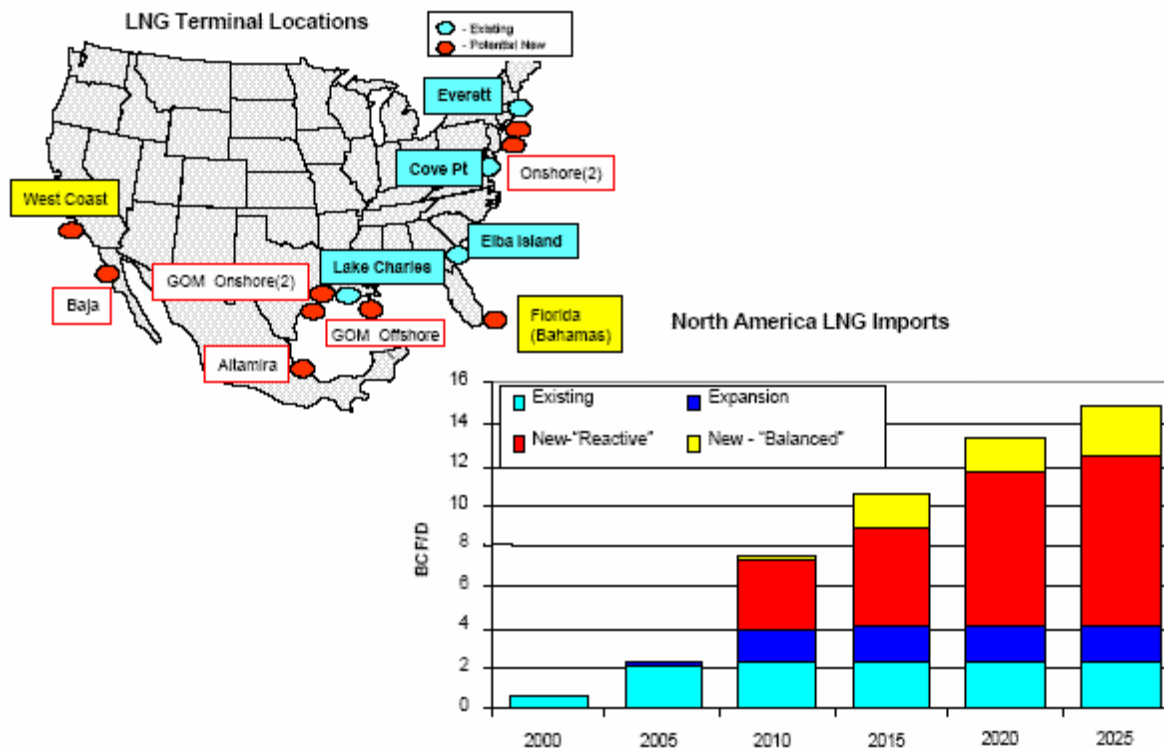
- Importation of LNG worldwide began over 40 years ago
- Annual growth rate of 6 - 10 percent per year



Historic / Projected Annual U.S. LNG Imports



- U.S. LNG imports projected to grow 6 to 7 fold over next 20 years
- New and expanded LNG import terminals are required

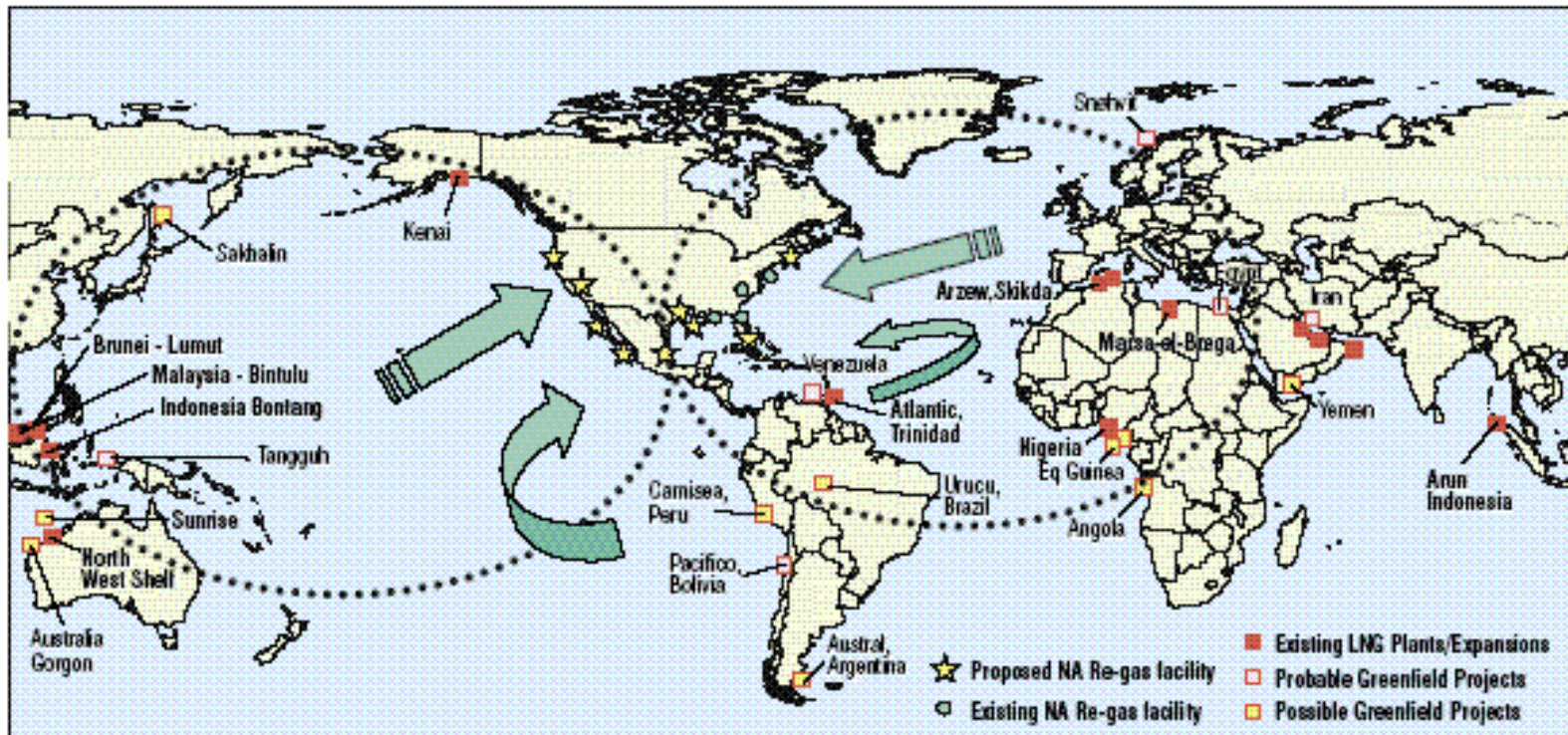


Source: National Petroleum Council

Potential LNG Supplies to US



- Worldwide supplies of LNG are growing rapidly



Source: Wood MacKenzie



Potential New Supply Sources for Southern California



Proposed LNG Projects

- ❑ Baja Mexico:
 - ❑ Sempra/Shell (1.0 Bcf/d)
- ❑ Long Beach:
 - ❑ Sound Energy Solutions (0.7 – 1.0 Bcf/d)
- ❑ Offshore Ventura/Oxnard:
 - ❑ BHP Billiton (0.8 Bcf/d)
 - ❑ Crystal Energy (1.0 Bcf/d)
- ❑ Southern California:
 - ❑ Tidelands Oil and Gas (1.0 Bcf/d)
 - ❑ Woodside Natural Gas (0.4 – 1.6 Bcf/d)



Accessing New Supply Sources Can Reduce California Natural Gas Prices



- LNG delivered to West Coast projected to reduce gas prices
- Magnitude of price reduction primarily dependent upon the volume of gas delivered
- Potential cost savings in the range of \$300 million to \$1 billion dollars per year has been forecasted
- Each \$.01/dth reduction results in \$27 million per year savings

Impacts of Natural Gas Prices on the California Economy



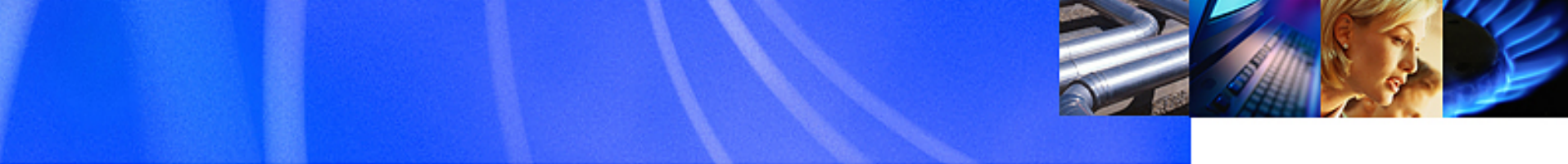
- Global Insight commissioned by California IOU's to study the impacts of Natural Gas Prices on the California economy
- Study released to public in March, 2006
- Concluded that sustained high natural gas prices* by 2016 could have the following impacts
 - 163,300 fewer jobs
 - Real Wage Disbursements less by \$15 Billion
 - Real Personal Income less by \$20 Billion
 - Real Gross State Product less by \$30 Billion

* Assumes \$10 MMBTU vs \$5 MMBTU

Gas Quality Standard Status



- Part of Phase II of Gas Market OII
- CPUC Decision in September 2006
- Key item of contention is Wobbe Index range
 - Supply impacts
 - Equipment operations
 - NO_x emissions

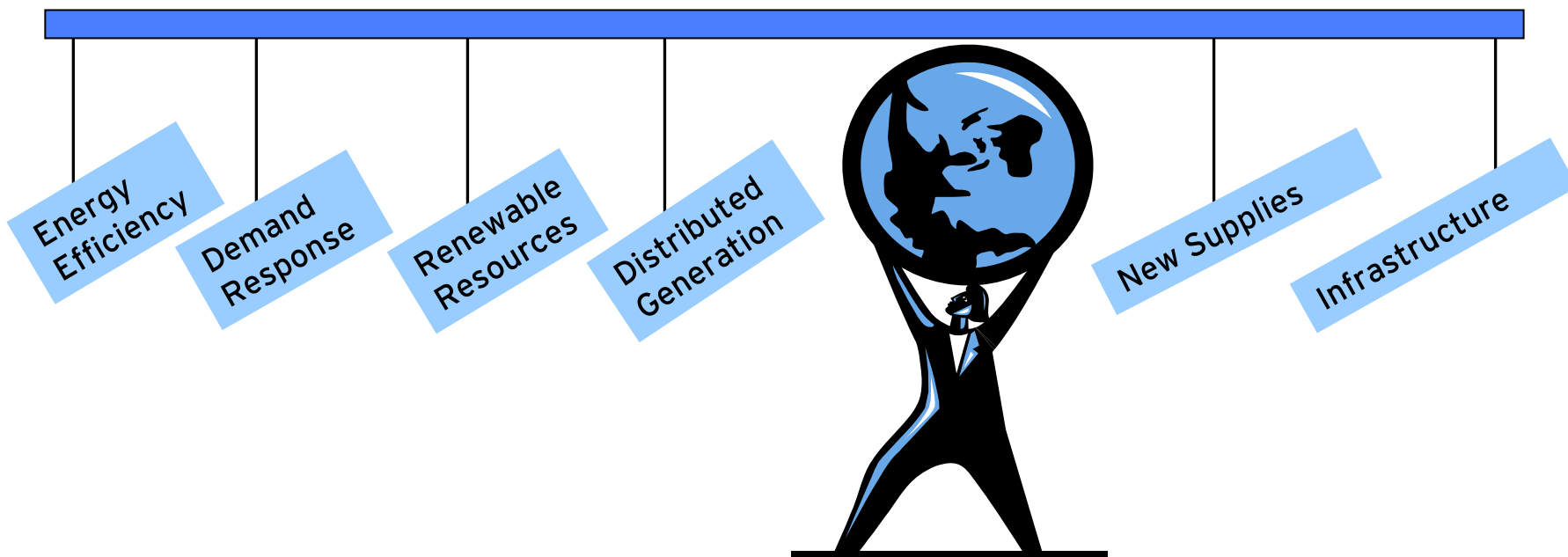


APPENDIX

California's Energy Action Plan



Reliable, Long-Term Natural Gas Supplies at Reasonable Rates





"To ensure reliable, long-term natural gas supplies to California at reasonable rates, the agencies must reduce or moderate demand for natural gas. . . . California must also promote infrastructure enhancements, such as additional pipeline and storage capacity, and diversify supply sources to include liquefied natural gas (LNG)."